REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-16 are now present in this application. Claims 1, 5, 9 and 13 are independent.

Claims 1-16 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment reduces the issues on appeal by distinguishing the Applicants' invention over the prior art currently of record. This Amendment was not presented at an earlier date in view of the fact that Applicants did not fully appreciate the Examiner's position until the Final Office Action was reviewed.

Drawings

A Drawing Correction Authorization Request was submitted on May 12, 2003. Applicants have not received a Notice of Draftsperson's Patent Drawing Review PTO-948 or other indication of whether or not the corrections have been approved by the Draftsperson. Clarification in the next Office Action is respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1, 4, 5, 8, 9, 12, 13 and 16 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,088,079 to Kameyama et al. (Kameyama). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Claims 1 and 5

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 1 has been amended to recite a combination of elements in a backlight device for a liquid crystal display device including, at

least one single layer cholesteric liquid crystal (CLC) film arranged on the front surface of the light waveguide plate, *selectively* collimating light *by controlling a helical pitch P of said CLC film according to the equation:* $\lambda_o = P(n_o+n_e)/2$, *where* λ_o *is a wavelength of vertically incident light, P is a helical pitch,* n_o *is an ordinary refractive index, and* n_e *is an extraordinary refractive index*, and claim 5 has been similarly amended to recite a combination of elements in a backlight device for a liquid crystal display device, including at least one single layer cholesteric liquid crystal (CLC) films arranged over the front surface of the light waveguide plate, collimating light, wherein the at least one CLC film selectively reflects vertically incident light with a wavelength of more than 600 nm *by controlling a helical pitch P of said CLC film according to the equation:* $\lambda_o = P(n_o+n_e)/2$, *where* λ_o *is a wavelength of vertically incident light, P is a helical pitch,* n_o *is an ordinary refractive index, and* n_e *is an extraordinary refractive index.*

Applicants respectfully submit that these combinations of elements as set forth in independent claims 1 and 5 are not disclosed or made obvious by the prior art of record, including Kameyama.

Kameyama teaches several methods of producing a cholesteric liquid crystal layer in which the helical pitch changes in the thickness direction, including preparing two or more layers of an aligned cholesteric liquid crystal polymer and bonding a given number of these layers by thermocompression bonding (Kameyama, Col.6, line 65- Col.7, line 28). Further, Kameyama

teaches that a film obtained by rubbing a thin film of a polyimide, poly (vinyl alcohol), or the like with a rayon cloth or the like, a thin film formed by the oblique vapor evaporation of SiO_2, etc., and an oriented film consisting of a stretched film, etc. may be used as the oriented film for bringing a cholesteric liquid crystal into Grandjean orientation.

The device of Kameyama appears to be enabled by employing a cholesteric liquid crystal layer having Grandjean orientation in which a helical pitch changes in the thickness direction, wherein circular dichroism, by which light is separated into reflected circularly polarized light and transmitted light, is exhibited over a wavelength region having a width of at least 50 nm and including a wavelength of 550 nm (Kameyama, Col.1, lines 55-61).

A helical pitch of a cholesteric liquid crystal layer is *not quantifiable* by any method disclosed in Kameyama, particularly in the portion of Kameyama referenced above. Further, obtaining a value of a helical pitch set forth therein as being of any consequence in terms of a helical pitch changing in the thickness direction.

Therefore, Kameyama fails to teach a combination of elements in a backlight device for a liquid crystal display device including, at least one single layer cholesteric liquid crystal (CLC) film arranged on the front surface of the light waveguide plate, *selectively* collimating light *by controlling a helical pitch P of said CLC film according to the equation: $\lambda_o = P(n_o+n_e)/2$, where λ_o is a wavelength of*

vertically incident light, P is a helical pitch, n_o is an ordinary refractive index, and n_e is an extraordinary refractive index, as recited in independent claim 1 (as amended), or a combination of elements in a backlight device for a liquid crystal display device, including at least one single layer cholesteric liquid crystal (CLC) films arranged over the front surface of the light waveguide plate, collimating light, wherein the at least one CLC film selectively reflects vertically incident light with a wavelength of more than 600 nm *by controlling a helical pitch P of said CLC film according to the equation: $\lambda_o = P(n_o+n_e)/2$, where λ_o is a wavelength of vertically incident light, P is a helical pitch, n_o is an ordinary refractive index, and n_e is an extraordinary refractive index*, as recited in independent claim 5 (as amended).

Claims 9 and 13

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 9 has been amended to recite a combination of elements in a backlight device for a liquid crystal display device, including a light waveguide plate guiding light from the light source, said light waveguide plate having an emitting surface, a front surface and a bottom surface, the emitting surface being adjacent to the light source, *the length of said emitting surface being substantially shorter than a length of the front surface*, and claim 13 has been similarly amended to recite a combination of elements in a backlight device for a

liquid crystal display device, including a light waveguide plate guiding light from the light source, said light waveguide plate having an emitting surface, a front surface and a bottom surface, the emitting surface being adjacent to the light source, *the length of said emitting surface being substantially shorter than a length of the front surface.*

Applicants respectfully submit that these combinations of elements as set forth in independent claims 9 and 13 are not disclosed or made obvious by the prior art of record, including Kameyama.

Prior to this amendment, the emitting surface was clearly defined in claims 9 and 13 as a surface of the waveguide plate being adjacent to the light source. It appears that the Examiner may have broadly interpreted the front surface of the waveguide plate of Kameyama as being adjacent to the light source because a portion of it may be *near* the light source. However, claims 9 and 13, as now amended, preclude this interpretation. In no embodiment shown or discussed in Kameyama is a CLC film arranged on a surface of a waveguide plate that is adjacent to a light source wherein the length of that particular surface is substantially shorter than a length of a front surface of the waveguide plate.

Therefore, Kameyama fails to teach a combination of elements in a backlight device for a liquid crystal display device, including a light waveguide plate guiding light from the light source, said light waveguide plate having an emitting surface, a front surface and a bottom surface, the emitting surface

being adjacent to the light source, *the length of said emitting surface being substantially shorter than a length of the front surface*, as recited in independent claim 9 (as amended), or a combination of elements in a backlight device for a liquid crystal display device, including a light waveguide plate guiding light from the light source, said light waveguide plate having an emitting surface, a front surface and a bottom surface, the emitting surface being adjacent to the light source, *the length of said emitting surface being substantially shorter than a length of the front surface*, as recited in independent claim 13 (as amended).

Claims 4, 8, 12 and 16 depend, either directly or indirectly, from independent claims 1, 5, 9 and 13, and therefore are patentable at least for the reasons stated with respect to independent claims 1, 5, 9 and 13. Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 2, 6, 10 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kameyama in view of U.S. Patent No. 5,691,789 to Li et al. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

With regard to dependent claims 2, 6, 10 and 14, Applicants submit that claims 2, 6, 10 and 14 depend, either directly or indirectly, from independent claims 1, 5, 9 and 13, which are allowable for the reasons set forth above, as Li et al. fails to cure the deficiencies of Kameyama noted above. Reconsideration and allowance thereof are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit

Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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